

tentibus, dense rufo-castaneis; marginibus undique regulariter excurvatis; lunula planata, satis definita; sublævi, secundum incrementa lirulis concentricis, antice solum definitis, vix sculpta: intus colore intensiore; dent. card. ii., iii.; lat. ant. curto utraque valva uno; cicatr. adduct. suborbicularibus; linea palliari a margine simplici valde remota, haud infecta: ligamento curtiore, omnino extus sito.

Long. 6 lin., lat. 5 lin., alt. 4 lin.

Hab. Port Jackson, New South Wales; dredged in 5 fathoms (*Angas*).

An interesting addition to the few known species of the original genus *Gouldia*, C. B. Ad., à *primâ manu*, of which the British *Circe minima*, auct., is typical. The *Gouldiæ* of the Panama and Mazatlan Catalogues prove to belong to an aberrant form of *Crassatella*.

6. NOTES UPON THE CUCKOOS FOUND NEAR SYDNEY, NEW SOUTH WALES. BY EDWARD P. RAMSAY.

(1.) THE BRONZE CUCKOO (*Chalcites lucidus*): Gould, B. Austr. iv. pl. 89.

We have for many years been under the impression that the females of this species lay two distinct varieties of eggs, which, although in many instances exactly the same in size, differ widely in colour and in style of marking.

The most satisfactory way of determining this question was to procure specimens of each of these different eggs, and to place them in nests of the *Malurus cyaneus*, or of various *Acanthizæ* (which had been built sufficiently near our residence to admit of our occasionally visiting them), until they were hatched, and then to compare the young birds so hatched from each of the different eggs. This we succeeded in doing in more instances than one, and found that the young birds were in every case alike, and that when they were sufficiently fledged we had no difficulty in recognizing them to be the young of the Bronze Cuckoo (*Chalcites lucidus*).

The first variety of the eggs in question (var. A), usually recognized as the egg of the Bronze Cuckoo, varies in colour from a uniform ashy grey to a rich dark olive-brown or bronze, many of the light ashy-grey specimens having minute dots of deep olive towards the larger end. In one specimen, in which these dots form a blotch, they are more inclined to reddish brown.

Var. B has a purely white ground, blushed with pink before the egg is emptied, and minutely freckled over the whole surface with dots of light brownish red or dull salmon-colour, running in some instances into blotches which stretch half across or round the surface, leaving patches of the white ground without any markings. Occasionally we find a specimen in which the salmon-colour and bronze seem to be blended, forming a curious brownish-lilac tint.

Both varieties vary much in size: we have specimens of var. A

varying from 8 by 6 lines to 10 by $5\frac{1}{2}$ lines ; of var. B, from 8 by 5 lines and $8\frac{1}{2}$ by 6 lines to $9\frac{1}{2}$ by 6 lines in breadth. The colouring-matter of both varieties easily rubs off, especially when the eggs are freshly taken. The Bronze Cuckoo seems to give no preference to any particular character of country, being found equally numerous in all parts. In the thick shrubs and low brushwood it finds a secure place for depositing its eggs in the nests of *Malurus lamberti* and *Acanthiza pusilla*. In the half-cleared patches of land and even in our gardens and shrubberies it seeks for the nests of the *Malurus cyaneus*, *Acanthiza lineata*, *A. reguloides*, and *A. nana*.

From a nest of this last-mentioned species (*A. nana*) I remember taking, in the year 1855, no less than six eggs. Among them were three of the Bronze Cuckoo—two of var. A and one of var. B. In November last (1864) we took another nest of the same species, containing one of each variety. In this instance one of the eggs, var. A, was imbedded below the lining of the nest, and had evidently been laid before the nest was completed, as is not unfrequently the case. The other egg, which was a specimen of var. B, my brother Percy placed in a nest of *Acanthiza lineata*, which he had found on the previous day and left for such an occasion. On returning to it about a week afterwards we found that the young Cuckoo had been hatched. After the lapse of seven days the bronze feathers were just commencing to appear, and in about a week or ten days more the young bird was nearly able to fly, the bronze on the wings, head, and back now showing plainly.

All the species of *Acanthizæ* that we have met with construct oval dome-shaped nests, having the entrance near the top, and more or less covered with a hood. The nests are either suspended (as in the case of *A. lineata*) from the end of some drooping or horizontal bough, or, like those of the *Maluri*, placed in some low bush or cluster of vines, or, as is often the case with *A. reguloides*, placed in the thick forks or loose hanging pieces of bark of the *Eucalypti* and white-barked Tea-trees (*Melaleuca*).

Now, as the apertures of the nests of the *Acanthizæ* are exceedingly small, a question naturally arises whether the Bronze Cuckoo lays its eggs in the nest, or places them there by some other means. To this I can only answer that the apertures of those nests which have contained Cuckoos' eggs are nearly twice as wide as the openings of those nests which we have taken before the Cuckoo's egg has been deposited in them. This is more easily noticed in the nest of *A. lineata*, of which the aperture is very small, and neatly covered over with a hood.

The following are a few extracts from my note-book, showing the species which are most frequently the foster-parents of the Bronze Cuckoo:—

	Nest.	Eggs of owner.	Eggs of Cuckoo.
Sept. 29th, 1862 ...	<i>Acanthiza pusilla</i>	2	1 of <i>C. lucidus</i> , var. B.
Sept. 11th, 1863* ...	„	2	1 of <i>C. lucidus</i> , var. A.
Sept. 12th, 1864 ...	<i>A. lineata</i>	3	1 of <i>C. lucidus</i> , var. A.
Sept. 12th, 1864 ...	<i>A. reguloides</i>	2	1 of <i>C. lucidus</i> , var. B.
Sept. 14th, 1864 ...	<i>Malurus cyaneus</i> .	3	1 of <i>C. lucidus</i> , var. B.
Sept. 14th, 1864 ...	<i>A. reguloides</i>	3	1 of <i>C. lucidus</i> , var. A.
Nov. 1864	<i>A. nana</i>	4	2 of <i>C. lucidus</i> : 1 of var. A and 1 of var. B.
Sept. 16th, 1864 ...	<i>Meliphaga sericea</i>	1	1 of <i>C. lucidus</i> , var. B.
Oct. 2nd, 1864	<i>Meliphaga sericea</i>	1	1 of <i>C. lucidus</i> , var. B.

Mr. Gould tells us that the Bronze Cuckoo is dispersed over the whole continent of Australia, as well as New Zealand. In the latter country I have myself met with it at every port I visited, from Stewart's Island to Auckland, where it arrives about September, and leaves during February and March.

(2.) The UNADORNED CUCKOO (*Cuculus inornatus*): Gould, B. Austr. iv. pl. 85.

When the eggs of two or more species of Cuckoo are found in the same locality, and the birds themselves equally plentiful during the same months, it becomes difficult to determine which is the egg of each species, except perhaps where there is a great difference in the size of the birds. Even this, however, must not be depended upon in too great a degree, as will be seen in the present case. Following the same plan as in the case of the Bronze Cuckoo (*Chalcites lucidus*), we succeeded in procuring two young Cuckoos from eggs which we had left in the nests of the Yellow-whiskered Honey-eater (*Ptilotis auricomis*). These, when fledged, we at once recognized to be the young of *Cuculus inornatus*.

The young, upon leaving the nest, have the throat, face, and shoulders black; the rest of the upper and under surface and tail irregularly marked with dashes and stripes of black, scarcely two feathers, even of wings, being alike. They retain this plumage until March and April, during which months all the specimens I procured were commencing to assume the more dusky plumage of the adult. During these months all the old birds seem to have left us, the young of the last season alone being found.

The present species arrives early in September, and is usually met with in pairs, showing a preference for the half-cleared land and belts of trees skirting the more cultivated parts. They may frequently be seen perched upon the dead tops of trees, or among the lower open branches, or often on the posts and fences, from which they pounce down upon any unhappy grasshopper or cricket that they may have discovered lurking in the grass.

Their food consists chiefly of *Gryllidæ* and *Phasmidæ*, various species of *Mantis*, and often the beautiful larvæ of the *Cæquosa triangularis* and *Antheræa eucalypti*, which they obtain among the

* This nest also contained one of *Cuculus cineraceus*.

leafy tops of the *Eucalyptus* trees. The crops in some specimens, procured in October last, contained nothing but grasshoppers, which appear to be their favourite food.

In this neighbourhood they usually deposit their eggs in the nests of *Ptilotis auricomis*, but also occasionally in those of *Ptilotis chrysoptera*, but rarely in those of *Ptilotis fusca* and *Melithreptus lunulatus*; in other districts, doubtless, in any nests suitable for the purpose. I have frequently observed that whenever the eggs of Cuckoos have been deposited in open nests, there is manifested a decided preference for those of birds which lay eggs similar to their own.

The Cuckoo's eggs mentioned in my notes upon the Yellow-whiskered Honey-eater (*P. auricomis*) in the 'Ibis' (vol. vi. 1864, p. 245) as being found in the nest of that bird, I have now no doubt belong to *Cuculus inornatus*, and not, as I then supposed from their small size, to *Cuculus cineraceus*.

The eggs of the Brown Cuckoo (*C. inornatus*) closely resemble the large and almost spotless variety of the Yellow-whiskered Honey-eater; they are, however, somewhat more rounded, and of a much lighter tint, being of a pale flesh-colour, sprinkled with a few dots of a deeper hue, but often without any markings at all. In length they vary from 11 to 12½ lines, being from 8½ to 9 lines in breadth.

They are usually hatched about the twelfth or fourteenth day, when the young Cuckoo, a little fat helpless creature, is scarcely larger than its foster-brethren. However, as it grows more rapidly, it soon fills up the greater part of the nest, and its unfortunate companions, either smothered by its weight or starved to death through its greediness, are thrown out by their parents.

On the 30th of October last (1864) we found two unhappy young birds which had been hatched in company with a Cuckoo in a nest of *Ptilotis auricomis*, tossed out and lying upon the ground just under the nest; they were of course quite dead, and appeared to have been about three or four days old.

During the months of October and November it is no uncommon sight to see the smaller birds feeding the young Cuckoos; even the little *Acanthiza*, which I believe are never the foster-parents, at least of this species (*C. inornatus*), join in supplying their wants, which are easily made known by their continual peevish cry, stopping only when being fed, or when their appetites are appeased.

While walking towards home, through a half-cleared paddock, on the 27th of last October, I was not a little surprised, upon hearing the cries of a young Cuckoo, to see a pair of adult birds of the same species (*C. inornatus*) flying after it, settling beside it, and apparently paying it great attention. Several times they flew away, but returned to it again; and from their actions I feel convinced that they were feeding it, although, much to my regret, I was unable to obtain a view sufficiently close to make sure of the fact.

(3.) The CINEREOUS CUCKOO (*Cuculus cineraceus*): Gould, B. Austr. iv. pl. 86.

This, the third and remaining Cuckoo which annually visits us, arrives much earlier than either of the former species.

During May I have found it very plentiful, preferring the lonely and more closely wooded parts, and the sandy scrub-lands studded with aged *Banksia* (*B. serrata*) and widely branching *Eucalypti*, where the undergrowth consists of low, thick, scrubby *Lambertia* (*L. formosa*), Acacias, and dwarf Banksias, &c. Such are the parts of our neighbourhood frequented by this species for nearly a month after its arrival. Their clear wailing cry is often heard from the depths of the bush, giving quite a melancholy tone to the surrounding neighbourhood.

June comes, and they leave their lonely haunts for the more open wooded parts. Here they may be seen, either singly or in pairs, often frequenting the gardens and orchards, where, among the leafless fruit-trees, their undulating flight and the peculiar cuckooish upward jerk of their tails at once render them conspicuous. As spring advances, their melancholy cry assumes a more cheerful tone, but is less often heard, giving place to a quicker and more harsh note.

The shrill whistle of the Bronze Cuckoos (*Chalcites lucidus*) is now more often heard, accompanied by the mellow notes of the Brown Flycatcher (*Micræca macroptera*), singing on the topmost bough of some neighbouring tree; and the twittering of the *Acanthiza* as they sport among the leafy branches of the *Eucalypti*, clinging to the ends of the twigs and leaves in every possible attitude, the tremulous anxious piping of the Spine-bills (*Acanthorhynchus tenuirostris*), the varied inward note of the Silver-eye (*Zosterops dorsalis*), with other species far too many to mention here, keep up a merry chorus, and, tired of the winter fogs, welcome the bright spring mornings.

As the birds pair off and the nesting-season commences, this Cuckoo seems to be less plentiful. Either some of them leave us, or they scatter over the bush so thinly that we do not observe their numbers. If some do migrate at this time, still many remain to deposit their eggs and to avail themselves of the nests of those species most suited to become the foster-parents of their young, after which they commence to leave us, and, with the exception of a few stragglers and young, appear to have all departed before the end of December.

Among those species the nests of which are favoured by visits from this "parasite" is *Acanthiza pusilla*, from a nest of which, in September 1863, we took no less than four eggs—two laid by the rightful owner of the nest, the other two by Cuckoos. One of these was a very fine specimen of var. B of *Chalcites lucidus*, the other an egg of the present species—*Cuculus cineraceus*. The entrance of this nest was greatly enlarged, being in width fully two inches; and the hood, which usually conceals the entrances (which are near the top of the nest, and not generally wider than one inch across), was pushed back to such an extent that the eggs were rendered quite visible.

I have now before me ten nests of *Acanthiza* and four of *Maluri*, the former comprising *Acanthiza lineata*, *A. nana*, *A. pusilla*, and what at present I believe to be that of *A. reguloides*, the latter *Malurus cyaneus* and *M. lamberti*.

Now, having compared the greatly enlarged entrances of those from which we have taken Cuckoos' eggs with the entrances of those which did not contain the egg of a Cuckoo, and which we took as soon as the bird had laid its full number of eggs for a sitting, I cannot but feel convinced more than ever that the eggs of these parasites are laid in the nests, and not deposited in any other manner. The average width of the entrances of the nests of *Acanthiza lineata* which have not been visited by a Cuckoo is 1 inch, while those which have contained Cuckoos' eggs vary from 2 to 2½ inches. In addition to the nests of *Acanthiza pusilla*, we have known this Cuckoo (*C. cineraceus*) deposit its eggs in the nests of *A. reguloides* (?) and *Chthonicola minima*. How great is the difference between the Cuckoo's eggs and those of this last bird (*Chthonicola minima*), which are of a bright reddish chocolate!

The eggs of *Cuculus cineraceus* are from 10 to 10½ lines in length, by 7 to 7½ in breadth. The ground-colour is a delicate white, spotted and dotted with wood-brown, deep brownish lilac, and fair lilac dots, which appear beneath the surface.

Some specimens are faintly sprinkled all over, and the dots have a washed-out appearance; others are marked more strongly, and in these the markings formed are in a distinct zone at the larger end, which is sometimes broken by a batch of very deep-coloured dots.

I have seldom met with the eggs of this species in collections (although sometimes I have seen those of *Cuculus inornatus*), whereas the eggs of *Chalcites lucidus* are to be found in almost every collection of eggs made in New South Wales. It is curious that one variety of the egg of the *Chalcites lucidus* (var. A) should be so different from the eggs of the species in the nests of which it is placed, whereas both the other species here mentioned lay eggs very similar to those of their foster-parents.

June 13, 1865.

Dr. J. E. Gray, F.R.S., in the Chair.

Mr. P. L. Slater exhibited a photograph of a pair of Gayals (*Bos frontalis*, Lambert), intended for transmission to the Society's Menagerie by Mr. W. Dunn, of Akyab, Corr. Memb. The animals were stated to be about half-grown.

Mr. Slater also exhibited a drawing of the Paradise-bird lately discovered in the Island of Waigiou by Dr. H. A. Bernstein, and described by Professor Schlegel as *Paradisea calva*, and remarked that it appeared to be the same as the *Paradisea wilsoni*, Cassin*.

* Journ. Acad. Sc. Phil. ii. p. 57, pl. 15.